Response to August 11, 2008 FLM BART Comments for Stanton Unit 1

The FLMs comments relating to the BART determination for Stanton Unit 1 are summarized below:

Comment #1:

The FLMs are concerned that the economic analysis was based on low uncontrolled SO_2 emissions while the BART emission limit was based on unreasonably high SO_2 emissions.

Response to Comment #1:

The Department's economic analyses were based on uncontrolled annual SO_2 emissions of 1.81 lb/million Btu for lignite and 1.2 lb/million Btu for PRB coal. The proposed BART emission limits for SO_2 are based on a 30-day rolling average (as opposed to an annual average) with 90% reduction and also includes emissions from startups, shutdowns and malfunctions. Based upon historical SO_2 emissions data for spray dryers and fabric filters at facilities burning North Dakota lignite, we have determined that an increase of 33% is warranted to adjust from an annual average SO_2 emission rate to a 30-day rolling average emission rate. The discussion regarding potential SO_2 emission rates as high as 2.4 lb/million Btu for lignite and 1.6 lb/million Btu for PRB coal was intended to show that higher sulfur coal could be encountered (see Appendix E, Sulfur Content Statistical Analysis, of the GRE BART Analysis).

Comment #2:

The FLMs contend that "On a $/ton basis, the 95% scrubbing option is more cost-effective than the less-efficient spray dryer alternative proposed by ND DOH" and "On a cost/ton and cost/deciview basis, wet scrubbing at 95% control is more cost-effective than the spray dryer at 90% control." Based upon the contention that wet scrubbing at 95% control is more cost-effective than a spray dryer at 90% control, the FLMs conclude that BART for Stanton #1 is a wet scrubber.

Response to Comment #2:

The FLMs chose to conduct the economic analysis for the wet scrubber based upon uncontrolled SO_2 emissions of 2.40 lb/million Btu for lignite and 1.60 lb/million Btu for PRB. The FLMs then compare the cost effectiveness for a wet scrubber (calculated at the 2.40 lb/million Btu and 1.60 lb/million Btu uncontrolled emission rates) to the cost effectiveness for a spray dryer calculated using uncontrolled SO_2 emission rates of 1.81 lb/million Btu for lignite and 1.20 lb/million Btu for PRB.

When comparing the cost effectiveness of different control technologies, it is necessary to use the same baseline uncontrolled emission rate for all control technologies. Since the FLMs failed to use the same baseline uncontrolled emission rates when calculating the cost effectiveness values for the wet scrubbing and spray dryer technologies, a comparison of the resulting cost effectiveness values is meaningless.

It should be noted that, since the annualized cost of a wet scrubber is estimated to be at least 15% greater than a spray dryer and only achieves a 5% greater emissions reduction, the FLMs contention that a wet scrubber is more cost effective than a spray dryer is not mathematically possible if the economic analysis is done correctly.

The Department correctly used the same baseline emission rate when calculating the cost effectiveness values for the SO_2 control technologies. When determining BART for SO_2, the Department also considered additional environmental considerations such as the additional water usage of a wet scrubber and the fact that a wet scrubber will remove a relatively small amount of SO_2 when compared to a dry scrubber (with a small corresponding visibility improvement).

Based upon the Department's analysis, the Department maintains the position that a spray dryer at 90% SO_2 control is more cost-effective than a wet scrubber at 95% SO_2 control. Considering the above factors, the Department has determined that BART is represented by the use of a spray dryer and fabric filter.